

REMARKS

This paper is filed in response to an Office action mailed on April 14, 2008. In that Office action, claims 1-3, 5-9, 11 and 12 stand rejected under 35 U.S.C. 103(a) as being purportedly obvious in view of prior art. More specifically, claims 1-3, 5-8 and 11 stand rejected as being obvious over U.S. Patent No. 5,155,792 (“Vali”), in view of U.S. Patent Application No. 2005/0238301 (“Russell”), and further in view of U.S. Patent No. 6,892,018 (“Libori”); claims 7-9 stand rejected as being obvious over Vali, in view of Russell, further in view of Libori, and further in view of U.S. Patent No. 6,334,019 (“Birks”); and claim 12 stands rejected as being obvious over Vali, in view of Russell, further in view of Libori, and further in view of U.S. Patent No. 3,567,549 (“Hoffmeister”). Applicants respectfully disagree and request reconsideration in light of the following remarks.

To support an obviousness rejection, MPEP §2143.03 requires “all words of a claim to be considered” and MPEP §2141.02 requires consideration of the “[claimed] invention and prior art as a whole.” Further, the Board of Patent Appeal and Interferences recently confirmed that a proper, post-KSR obviousness determination still requires the Office to make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” See, *In re Wada and Murphy*, Appeal 2007-3733, citing *In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995).

Additionally, ‘[a] prima facie case of obviousness can be rebutted if the applicant ... can show “that the art in any material respect taught away” from the claimed invention.’ *In re Geisler*, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997) (quoting *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974)). ‘A reference may be said to teach away when a person of ordinary skill, upon reading the reference, ... would be led in a direction divergent from the path that was taken by the applicant.’ *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999).’).

Turning to the first rejection, claims 1-3, 5-8 and 11 stand rejected as being obvious over Vali, in view of Russell, and further in view of Libori. The Examiner asserts that the base reference, Vali, teaches all of the claimed limitations except for an optical fiber formed of a monolithic preform from optically suitable polymeric material. The Examiner then relies upon Russell and Libori to supply Vali with a monolithic preform from optically

suitable polymeric material. However, the purported combination of prior art fails to render the claims obvious.

Vali specifies a core (20, 120, 220) and cladding (30, 130, 230) to be fabricated using a conventional fiber optic drawing process in order to form the fiber (10, 100, 200). Specifically, an arrangement including a solid rod surrounded by a plurality of preform capillary tubes is suspended from a draw tower to fabricate optical fibers (column 3, lines 41-57). The manufacturing method disclosed by Vali is a stack and draw process wherein the individual fiber elements (the core and cladding capillary tubes) are stacked to form an array which is subsequently drawn to form the optical fiber. Russell and Libori similarly describe processes of using a preform comprising a bundle, stack or cladding of tubes, from which fibers are drawn. More specifically, paragraph [0100] of Russell describes a typical preform 20 for a photonic crystal fiber comprising a bundle of thin tubes 30 held together inside a large tube 5, from which a photonic crystal fiber 10 is drawn. Libori also makes references to Bragg stacks, cladding layers, and the like, for drawing optical fibers throughout the specification. For instance, column 21, lines 60-61 of Libori clearly states “that the structure shown in FIG. 5 can readily be stacked and drawn.” Nothing in Vali, Russell or Libori, teaches a method of producing a microstructured optical fiber that does not require an additional step of bundling, stacking or cladding, let alone producing such fibers from a monolithic preform formed from optically suitable polymeric material.

Furthermore, each of Vali, Russell and Libori teaches away from the current application. Paragraphs [0023]-[0024] of the current application state that the disclosed methods provide advantages over bundling, stacking or cladding, since the hole pattern, size and spacing can be altered independently and no interstitial holes are created within the lattice. The present application clearly aims to overcome the disadvantages associated with bundling, stacking or cladding. In contrast, Vali, as well as Russell and Libori, *requires* steps of bundling, stacking or cladding, prior to drawing an optical fiber. Upon reading these references, a person of ordinary skill in the art would clearly be led in a direction divergent from the path that was taken by the applicant, and therefore, taught away from the claimed invention.

As the combination of Vali, Russell and Libori fails to disclose a process of producing a microstructured optical fiber from a monolithic preform formed from optically suitable polymeric material which does not rely upon bundling, stacking or cladding, and

teaches away from the claimed invention, the obviousness rejection of claims 1-3, 5-8 and 11 must fail should be withdrawn.

Turning to the second rejection, claim 9 stands rejected as being obvious over Vali, in view of Russell, further in view of Libori, and further in view Birks. The Examiner asserts that the purported combination of Vali, Russell and Libori teaches all of the claimed limitations except for a two-stage drawing process. Subsequently, the Examiner relies upon Birks to supply a two-stage drawing method comprising the step wherein a plurality of holes is drilled into a plurality of rods at predetermined locations to create channels. The combination of Vali, Russell and Libori has been previously discussed as failing to teach or suggest every limitation of the pending claims, and teaching away from the claimed invention. Birks also fails.

Birks discloses a large core photonic crystal fiber for transmitting radiation having a core comprising a substantially transparent core material and having a core diameter of at least 5μ . Column 10, lines 4-19 of the Birks specification discloses the manner in which the crystal fiber is produced by a stack and draw process. A series of cylindrical rods of fused silica are stacked together and then drawn using a drawing tower to form a cane. A series of canes are then stacked and subsequently drawn down into the final fiber using the drawing tower. Column 10, lines 21-26 of the Birks specification discloses an alternative manufacturing technique which similarly employs another stack and draw process. Birks does not teach or suggest a monolithic preform formed from an optically suitable polymeric material within which voids are formed at predetermined locations. Birks fails to supply the purported combination of Vali, Russell and Libori with a process for producing a microstructured optical fiber that does not rely on a stack and draw process. Furthermore, by reading Birks, a person of ordinary skill in the art would be led only towards processes based upon such steps of stacking and drawing, and in a direction divergent from the path that was taken by the applicant. Accordingly, the Birks reference also teaches away from the claimed invention.

As Birks fails to supply all of the deficiencies of Vali, Russell and Libori, and additionally teaches away from the claimed invention, the obviousness rejection of claim 7, as well as claims 8 and 9 dependent thereon, must fail should be withdrawn.

Turning to the final rejection, claim 12 stands rejected as being obvious over Vali, in view of Russell, further in view of Libori, and further in view of Hoffmeister. The

Examiner asserts that the purported combination of Vali, Russell and Libori teaches all of the claimed limitations except for an optical fiber for imaging applications. The Examiner further relies upon Hoffmeister to supply the claimed optical fiber for imaging applications comprising light-guiding cores. The combination of Vali, Russell and Libori has been previously discussed as failing to teach or suggest every limitation of the pending claims, and teaching away from the claimed invention. Hoffmeister fails to supply all of the deficiencies of Vali, Russell and Libori. More specifically, Hoffmeister is directed toward a method of producing fiber optics for image transmitting devices which also relies upon a bundle and stacking process. For one example, column 4, lines 62-73 of Hoffmeister specifies a bundle 1 of a plurality of fibers immersed in a liquid 3 and drawn upwardly. Nothing in Hoffmeister teaches a process of producing an optical fiber without bundling, stacking or cladding prior to drawing, and therefore, also teaches away from the claimed invention.

As Hoffmeister fails to supply all of the deficiencies of Vali, Russell and Libori, and similarly teaches away from the claimed invention, the obviousness rejection of claim 12 based upon the combination of Vali, Russell, Libori and Hoffmeister must fail should be withdrawn.

In light of the foregoing, applicants respectfully submit that each of the currently pending claims, i.e. claims 1-3, 5-9, 11 and 12, are in a condition for allowance and respectfully solicit the same. If a telephone call would expedite prosecution of the subject application, the Examiner is invited to call the undersigned agent. The undersigned verifies that he is authorized to act on behalf of the assignee of the present application.

Dated: June 25, 2008

Respectfully submitted,

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